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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/627,725 | 07/28/2003 | Ho-Jin Kweon | 1567.1007D | 7093 |
| 49455 7590 02/09/2009 STEIN, MCEWEN & BUI, LLP 1400 EYE STREET, NW SUITE 300 WASHINGTON, DC 20005 | | | | |
| EXAMINER CRUPEAU, JONATHAN | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 1795 | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/627,725

Applicant(s)

KWEON ET AL.

Examiner

Jonathan Crepeau

Art Unit

1795

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 05 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-14, 17-20, 22-24 and 38-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-14, 17-20, 22-24, 38, 39 and 41 is/are allowed.
- 6) ☒ Claim(s) 40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 12/16/08.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This Office action addresses claims 11-14, 17-20, 22-24, and 38-41. Claims 11-14, 17-20, 22-24, 38, 39, and 41 are allowed. Claim 40 is newly rejected under 35 USC 103, as necessitated by amendment. Accordingly, this action is made final.

Terminal Disclaimer

2. The terminal disclaimer filed on December 5, 2008 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patent Nos. 6753111, 6797435, and 6846592 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 103

3. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kweon et al (U.S. Patent 6,183,911) in view of Gao et al (U.S. Pre-Grant Publication No. 2002/0127175) in view of Maegawa et al (U.S. Patent 6,383,235).

Kweon et al. is directed to a positive active material for a rechargeable lithium battery. The active material may comprise LiCoO_2 , LiNiO_2 , or $\text{Li}_x\text{Ni}_y\text{Co}_{1-y}\text{O}_2$ and has a surface treatment layer comprising V_2O_5 on the lithiated core (see abstract). The active material is made by a process of dissolving vanadium pentoxide in an organic solution, coating the active material, and

drying the coated compound at 100-1000 degrees C for 1-20 hours (see col. 2, line 35-65), the latter anticipating the limitations of drying at 60-100 C and “without further heat treatment.”

Kweon et al. do not expressly teach that the lithiated compound is prepared by mixing a lithium source, a metal source, and a solvent and heat treating the mixture twice, as recited in claim 40.

Gao et al. is directed to methods of making lithium cobalt oxides. In [0034], the reference teaches that source compounds can be suspended in a solution of other source compounds and the mixture is spray dried. Subsequently, the material is subjected to two heating steps to form the final cathode material (see [0035], [0036]).

Therefore, it is submitted that the artisan would be motivated to make the lithiated compound of Kweon et al. according to the process of Gao et al. In [0036], Gao et al. teach that the second heat treatment step forms and enhances the hexagonal layered crystal structure of the compounds. Further, the technique of mixing source compounds with a solvent and heat-treating twice was recognized as part of the ordinary capabilities of one skilled in the art.

However, Kweon et al. further does not expressly teach that the coating and drying are performed simultaneously as also recited in claim 40.

Macgawa et al is directed to a method of forming a cathode material by spray-drying. In the method, two solutions are mixed and then sprayed (injected) into a spray-dryer with a compressed air flow (see Example 1).

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use the spray-dryer of Macgawa et al. to perform the mixing and drying of the material of Kweon et al.

Regarding the mixing of the materials of Kweon et al., it would be obvious to employ any method that would result in sufficient mixing of the lithiated compound and the coating solution (see col. 2, line 53 of Kweon et al.). Maegawa et al. is evidence of this, and discloses in numerous locations that its process and apparatus provides for good mixing between the solutions. Therefore, a skilled artisan would be motivated to use a spray dryer as suggested by Maegawa et al. to mix the materials of Kweon et al. Regarding the limitation that “the coating and drying of the lithiated compound is performed simultaneously,” it is submitted that the use of the spray-dryer of Maegawa would render this limitation obvious. As disclosed in Maegawa, spray-drying involves removal of the solvent as the materials are mixed. Thus, a coating and drying function are performed simultaneously.

Allowable Subject Matter

4. Claims 11-14, 17-20, 22-24, 38, 39, and 41 are allowed.
5. The following is a statement of reasons for the indication of allowable subject matter:

Independent claims 11, 38, 39, and 41 recite, among other features, that the organic solution excludes water. JP 9-171813 discloses the addition of water to precipitate the networked layer on the surface of the lithium composite oxide. As it would not be obvious to exclude water from the method of the reference, the instant claims are considered to contain allowable subject matter.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan, can be reached at (571) 272-1292. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Jonathan Crepeau/
Primary Examiner, Art Unit 1795
February 7, 2009